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50X1-HUM

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

COUNTRY USSR

SUBJECT Scientific - Electrical instruments

DATE OF INFORMATION 1947

HOW PUBLISHED Monthly periodical

DATE DIST. 25 Oct 1949

WHERE
PUBLISHED **Moscow**

NO. OF PAGES 1

DATE PUBLISHED Apr 1947

SUPPLEMENT TO
REPORT NO.

LANGUAGE Russian

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SOURCE : Elektrichestvo, No 4, 1947.

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A PORTABLE OSCILLOGRAPH WITH NINE LOOPS

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[A Digest]

The YO-1 portable nine-loop oscillograph (test model) designed and built at the Sesimological Institute in 1945 records on standard oscillograph photo film (12 centimeters wide) and consists of the following basic parts: electric motor (50 watts, 5,500 rpm); film case with two reels (capacity, 15 meters of film); special friction regulator (two stages) with smooth speed regulation from 1 to 20 centimeters per second; time marker operated by a 50-cps tuning fork; visual scanning viewer; and a 12-volt, 50-watt projection lamp. The instrument operates on a 24-volt supply, weighs 46 kilograms and is 675 millimeters long, 325 millimeters wide, and 385 millimeters high. The loop sensitivity, which averages 25 millimeters: (mm · g), can be adjusted by resistances and capacitors. The loop frequency can be regulated by changing the tension and effective length of the filaments.

The principle of operation is as follows: an electric motor is connected through two worm gears to the brake shaft of the friction regulator. Its rotation causes a steel cone to rotate which transmits its motion to a second cone through a friction textolite roller. The output shaft drives a magnetic clutch (through a series of gears) which attracts an armature diaphragm and activates the reeling mechanism when the switch is turned on. A friction clutch on the winding reel assures proper film travel. The output shaft also sets in motion a scanning mirror drum. For marking time, a tuning fork with fine cross-hairs is switched on at high tape speeds, while at low speeds a flicker device is operated from a contact chronometer.

At present, the design department of the Institute is making modifications and additions to the YO-1 oscillograph (for example, increasing tape speed to 2-3 meters per second) which will enlarge its field of usefulness.

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